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# United States Department of Agriculture,

## DIVISION OF PUBLICATIONS—Circular 7.

JOS. A. ARNOLD, Editor and Chief.

WASHINGTON, D. C., January 28, 1913.

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### PUBLICATIONS OF THE OFFICE OF EXPERIMENT STATIONS.

NOTE.—Application for publications in this list should be made to the Editor and Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C. The editions of some of the publications are necessarily limited, and when the supply is exhausted and no funds are available for procuring additional copies, applicants are referred to the Superintendent of Documents, Government Printing Office, who has them for sale at a nominal price, under the law of January 12, 1895. Applicants are urgently requested to ask only for those publications in which they are particularly interested. The department can not undertake to supply complete sets, nor is it allowable to send more than one copy of any publication to an applicant.

#### MISCELLANEOUS.

##### REPORTS.

Report of the Director of the Office of Experiment Stations for the year 1889.			
Same, 1896.	Same, 1909.	Same, 1911.	Same, 1912.
Same, 1902.	Same, 1910.		

#### BULLETINS.

[In applying for bulletins the name of the office as well as the number of the bulletin should be given, as "Office of Experiment Stations, Bulletin No. 2."]

- Bul. 2. Digest of the Annual Reports of the Agricultural Experiment Stations in the United States for 1888.
- 10. Meteorological Work for Agricultural Institutions.
- 42. Cotton Culture in Egypt.

#### CIRCULARS.

[In applying for circulars the name of the office as well as the number of the circular should be given, as "Office of Experiment Stations, Circular No. 25."]

- Circ. 25. Cañaire (*Rumex hymenosepalus*).
- 30. Permanent Elements in Experiment Station Work.
- 71. Report of the Committee on Experiment Station Organization and Policy. [Presented to the Association of American Agricultural Colleges and Experiment Stations, Baton Rouge, 1906.]
- 82. Report of Committee on Station Organization and Policy. [Presented to the Association of American Agricultural Colleges and Experiment Stations, Washington, 1908.]

#### DOCUMENTS.

[In applying for documents the name of the office as well as the number of the document should be given, as "Office of Experiment Stations, Document No. 406."]

- Doc. 406. The Legislative Career of Hon. Justin T. Morrill.
- 506. Address of President of Association of American Agricultural Colleges and Experiment Stations.
- 614. General Index to Experiment Station Record, Volumes I to XII, 1889-1901, and to Experiment Station Bulletin No. 2.

Doc. 681. Memorial Address of President W. L. Broun.

1089. Changes in the Personnel of the Experiment Stations and Factors Influencing Them.

1383. List of Station Publications Received by the Office of Experiment Stations during June, 1911.

1398. List of Station Publications Received by the Office of Experiment Stations during July, 1911.

1400. List of Station Publications Received by the Office of Experiment Stations during August, 1911.

1405. List of Station Publications Received by the Office of Experiment Stations during September, 1911.

1416. List of Station Publications Received by the Office of Experiment Stations during October, 1911.

1424. List of Station Publications Received by the Office of Experiment Stations during November, 1911.

1477. List of Station Publications Received by the Office of Experiment Stations during August, 1912.

1480. List of Station Publications Received by the Office of Experiment Stations during September, 1912.

1495. List of Station Publications Received by the Office of Experiment Stations during November, 1912.

1500. List of Station Publications Received by the Office of Experiment Stations during December, 1912.

#### FARMERS' BULLETINS.

[In applying for Farmers' Bulletins the number of the bulletin should be given, as "Farmers' Bulletin No. 35."]

F. B. 35. Potato Culture.

44. Commercial Fertilizers: Composition and Use.

48. The Manuring of Cotton.

77. The Liming of Soils.

81. Corn Culture in the South.

192. Barnyard Manure.

270. Modern Conveniences for the Farm Home.

277. The Use of Alcohol and Gasoline in Farm Engines.

303. Corn-Harvesting Machinery.

#### EXPERIMENT STATION WORK.

[Experiment Station Work is a subseries of Farmers' Bulletins compiled from the published reports of the agricultural experiment stations and kindred institutions in this and other countries. In sending for bulletins of this series simply ask for Farmers' Bulletins, giving the serial number of the bulletin without specifying the topics treated in it, as "Farmers' Bulletin 56."]

F. B. 56. Experiment Station Work—I.

CONTENTS: Good *vs.* poor cows—Corn *vs.* wheat—Effects of rations richer and poorer in protein—Forage crops for pigs—Robertson silage mixture—Alfalfa—Effect of fertilizers on the proportion of grain to straw and stover—Comparative fertilizing value of the different phosphates—The harmful effects on soils of the continued use of muriate of potash—Recent progress in the study of irrigation—Potato scab—Barnyard manure.

65. Experiment Station Work—II.

CONTENTS: Common crops for forage—Stock melons—Starch in potatoes—Crimson clover—Geese for profit—Cross pollination—A germ fertilizer—Lime as a fertilizer—Are ashes an economical fertilizer?—Mixing fertilizers.

69. Experiment Station Work—III.

CONTENTS: Flax culture—Crimson clover—Forcing lettuce—Heating greenhouses—Corn smut—Millet disease of horses—Tuberculosis—Pasteurized cream—Kitchen and table wastes—Use of fertilizers.

73. Experiment Station Work—IV.

CONTENTS: Pure water—Loss of soil fertility—Availability of fertilizers—Seed selection—Jerusalem artichokes—Kafir corn—Thinning fruit—Use of low-grade apples—Cooking vegetables—Condimental feeding stuffs—Steer and heifer beef—Swells in canned vegetables.

78. Experiment Station Work—V.

CONTENTS: Humus in soils—Swamp, marsh, or muck soils—Rape—Velvet bean—Sunflowers—Winter protection of peach trees—Subwatering in greenhouses—Bacterial diseases of plants—Grape juice and sweet cider.

## F. B. 79. Experiment Station Work—VI.

CONTENTS: Fraud in fertilizers—Sugar-beet industry—Seeding grass land—Grafting apple trees—Forest fires—American clover seed—Mushrooms as food—Pigs in stubble fields—Ensiling potatoes—Anthrax.

## 84. Experiment Station Work—VII.

CONTENTS: Home-mixed fertilizers—Forcing asparagus in the field—Field selection of seed—Potatoes as food—Corn stover as a feeding stuff—Feeding value of sugar beets—Salt marsh hay—Forage crops for pigs—Ground grain *vs.* whole grain for chicks—Skim milk for young chickens—By-products of the dairy—Stripper butter—Curd tests in cheese making—Gape disease of chickens.

## 87. Experiment Station Work—VIII.

CONTENTS: Soil moisture—Fertility of soil—Cover crops for orchards—Cultivating *vs.* cropping orchards—Transplanting trees—Fecundity of swine—Food value of eggs—Starch from sweet potatoes—The toad as a friend of the farmer.

## 92. Experiment Station Work—IX.

CONTENTS: Sugar beets on alkali soils—Planting and replanting corn—Improvement of sorghum by selection—Improved culture of potatoes—Second crop potatoes for seed—Cold *vs.* warm water for plants—Soils and fertilizers for forcing head lettuce—The date palm in the United States—Recent studies on the codling moth—Jerusalem artichokes for pigs—Supplements to skim milk in fattening calves—Pasteurization of milk for butter making—Gassy and tainted curds—Pure cultures of bacteria for cheese making.

## 97. Experiment Station Work—X.

CONTENTS: Manure from cows—Plants for alkali soils—Influence of alkali on plants—Feeding value of the corn plant—Sows and pigs at arrowing time—The soy bean as a feeding stuff—Alfalfa hay for hogs—Animal matter for poultry—Water and animal diseases—Construction and cooling of cheese-curing rooms—Irrigation investigations.

## 103. Experiment Station Work—XI.

CONTENTS: Excessive irrigation—Cross pollination of plums—Root pruning of fruit trees—The oxeye daisy—Poisoning by wild cherry leaves—Preserving eggs—Gestation in cows—The long clam—Silage for horses and hogs—Commercial butter culture with pasteurized cream—The stave silo.

## 105. Experiment Station Work—XII.

CONTENTS: Seaweed—The tillering of grain—Fertilizers for garden crops—Sweet corn and pole beans under glass—Girdling grapevines—Cereal breakfast foods—Food value of stone fruits—When to cut alfalfa—Spontaneous combustion of hay—Preservation of milk by pressure—Cream raising by dilution.

## 114. Experiment Station Work—XIV.

CONTENTS: Influence of salt and similar substances on soil moisture—Extra early potatoes—Rotting of cranberries—Chestnuts—Low-grade Paris green—Crude petroleum as an insecticide—Skim milk in bread making—Best number of hens in one pen—Nest box for egg records—Profitable and unprofitable cows.

## 119. Experiment Station Work—XV.

CONTENTS: Storing apples without ice—Cold storage on the farm—Mechanical cold storage for fruit—Keeping qualities of apples—Improvement of blueberries—Transplanting muskmelons—Banana flour—Fresh and canned tomatoes—Purslane—Mutton sheep—Effect of cotton-seed meal on the quality of butter—Grain feed of milch cows—Protection against Texas fever.

## 122. Experiment Station Work—XVI.

CONTENTS: Liming grass lands—Early plowing for fall wheat—Grafting grape cuttings—Olives—Nuts as food—Coffee substitutes—The working of a pure-food law—Feeding moldy corn—Selling eggs by weight—Flavor of eggs—Unfermented grape juice.

## 133. Experiment Station Work—XVIII.

CONTENTS: Value of stable manure—Alfalfa as a fertilizer—Liming acid soils—Celery culture—The greenhouse in summer—Frost-resisting strawberries—Fumigator for fruit trees—Foundation in comb building—Ridding houses of flies—Slop for pigs—Profitable crops for pigs—Barley for horses—Water in butter—Losses in the silo.

## 144. Experiment Station Work—XIX.

CONTENTS: Maintenance of soil fertility—Thomas slag—Rotation of crops—Gardening under glass—Winter irrigation of orchards—Improvement of American grapes—Condimental and medicinal cattle and poultry foods—Feeding rice meal to pigs—Dressing and packing poultry—The curing of cheese—An improved cow stall.

## 149. Experiment Station Work—XX.

CONTENTS: Muck or peat—Culture of potatoes—The farmer's vegetable garden—Shrinkage of farm products—Muskmelons—Soils and fertilizers for strawberries—Plum culture—Onion culture—Digestibility of milk—Shelter for dairy cows—Feed mills and windmills.

**F. B. 162. Experiment Station Work—XXI.**

CONTENTS: Value of barnyard manure—Nitrate of soda for market-garden crops—Cooking meat—Sugar-beet products—Feeding horses—Plant poisonous to horses—Fattening beef cattle—Profit from dairy cows—Shearing as affecting gains made by lambs—Salt pork and bacon—Purifying milk—Cheese prints—Draft of farm wagons—The disk plow.

**169. Experiment Station Work—XXII.**

CONTENTS: Pure water for cows—When to cut forage crops—Lippia, or fog fruit—Pithiness in celery—Irrigation of strawberries—Farmers' fruit garden—Management of orchards—Tropical and subtropical fruits—China asters—Preserving sweet potatoes—Food value of beans—Tankage for pigs—Remedies for fleas.

**186. Experiment Station Work—XXIII.**

CONTENTS: Losses in manure—Macaroni wheats—Sterilizing greenhouse soils—Tomatoes under glass—Protection of peach buds—Dandelions in lawns—Apple pomace for cows—Rations for laying hens—Early molting of hens—Evaporation from incubator eggs—Keeping quality of butter—Curing cheese in cold storage.

**190. Experiment Station Work—XXIV.**

CONTENTS: Cost of eggs in winter—The chicken mite—Soiling crops—Profitable and unprofitable cows—Methods of milking—Coating cheese with paraffin—The octagonal silo—Ventilation of stables—Disposal of diseased carcasses.

**193. Experiment Station Work—XXV.**

CONTENTS: Watermelons in the North—Watermelon culture in Georgia—Muskmelon culture in the North—Rockyford muskmelon—Cold storage of fruits—Selection of seed corn—Bread and toast—Cooking meat—Bitter milk.

**202. Experiment Station Work—XXVI.**

CONTENTS: Reclamation of flood-damaged lands—Mulching vegetables and fruits—Cultivation of orchards—Thinning apples—Pop corn—Fruit for farm animals—Protein for dairy cows—Cost of raising calves and pigs—Manufacture of sage cheese—Manufacture of cottage cheese—A cheap fruit evaporator.

**210. Experiment Station Work—XXVII.**

CONTENTS: Hen manure—Nitrate of soda for field crops—Varieties, culture, and quality of wheat—Breeding corn—Quality of irrigated crops—Shading strawberries and vegetables—Injuries to shade trees—Soft corn—Hay substitutes—Oak leaves as forage—The covered milk pail—Canning cheese—Millet seed for hogs—Fertilizers for potatoes.

**222. Experiment Station Work—XXVIII.**

CONTENTS: Home mixing of fertilizers—Growing sweet-corn seed in the South—Kherson oats—Cowpea hay—Weight per quart of feeding stuffs—Suggestions regarding grain rations—Recent horse-feeding tests—Market classes and grades of swine—Silage in place of grain for dairy cows.

**225. Experiment Station Work—XXIX.**

CONTENTS: Injury to agriculture by smoke and gases—Incompatibles in fertilizer mixtures—Value of flint varieties of corn—Buying and judging seed corn—Tobacco seed—Cowpea seed—Treating seed oats for smut—Potato culture—Further points in tomato growing—Influence of feed on milk—Protecting cows from flies—Recent experiments with turkeys—Grit and mineral matter for chickens—A successful brooder house—Camembert cheese making in the United States—Prevention of swelling in canned peas.

**227. Experiment Station Work—XXX.**

CONTENTS: Top-dressing grass land—Expansion of the corn-growing area—Culture of peanuts for forage—Interkilling of fruit trees—Cranberry culture—Lime-sulphur-salt wash—Destroying prairie dogs—Clean milk—Construction and ventilation of poultry houses.

**233. Experiment Station Work—XXXI.**

CONTENTS: Root systems of plants—Fertilizers for asparagus—Mushroom culture—Onions in the Southwest—Ether forcing of rhubarb—Noodles—Condimental feeds—Beef *n.* dairy type for beef production—Feeding skim-milk calves—Animal food for ducks—Milk from diseased cows—Cider vinegar.

**237. Experiment Station Work—XXXII.**

CONTENTS: Lime and clover—Plant-food requirements of fruit trees—Apple growing in New York—Running out of seed wheat—High-protein seed wheat—Tobacco-seed selection—Cover crop for tobacco fields—Cereal breakfast foods—Damaged wheat as feed—Bedding for cows—Amateur poultry raising—Care of cream on the farm—Paying the patrons of creameries—Gassy fermentation of Swiss cheese—Yeast as a disinfectant.

**244. Experiment Station Work—XXXIII.**

CONTENTS: Handling seed corn—Adaptation of seed corn—Effect of root nodules on come position of crops—Fumigation of nursery stock—Cooking quality of potatoes—Food value of cottage cheese, rice, peas, and bacon—Methods of feeding poultry—Extermination of cattle ticks—Covered yards for cows.

## F. B. 251. Experiment Station Work—XXXIV.

CONTENTS: American sugar-beet seed—Stimulants for seeds—Profits from spraying potatoes—Winter-injured fruit trees—Durum wheat—Fertility of eggs—Indoor *v.* outdoor feeding of steers—Roughage for steers—Cheap dairy rations—Cotton-seed meal for hogs.

## 259. Experiment Station Work—XXXV.

CONTENTS: Use of commercial fertilizers—Weight of lime per bushel—Spreading lime—Soil sterilization—Weights per bushel of seeds—Disease-resistant crops—Corn billbug and root-louse—Asparagus rust and its control—Alfalfa meal as a feeding stuff—Singed cacti as forage—Cattle feeding in the South—Milk fever—Nail wounds in horses' feet—Use of a cheap canning outfit.

## 262. Experiment Station Work—XXXVI.

CONTENTS: Water for table use—Phosphates—Winter wheat—Glutenous and starchy wheats—Dry farming—Methods of canning—Beet molasses and pulp—Feed lots—Guinea fowls—Color of eggs—Spraying for scale insects—White pine in New England.

## 267. Experiment Station Work—XXXVII.

CONTENTS: Breeding corn—Buckwheat—Sugar beets on alkali soils—Alfilaria as a forage plant—Apple bitter rot—Grass mulch for orchards—Hardiness of young fruit trees—Protecting cows from flies—Effect of silage on milk—Cold storage of cheese.

## 273. Experiment Station Work—XXXVIII.

CONTENTS: Loss of nitrogen from soils—Manure as affected by food—Continuous corn culture—Pasturing wheat—Storage of sweet potatoes—Rotting of potatoes in storage—Hog cots—The disinfection of stables—Effect of horsetail weeds on horses—Treatment of calf scours—Preserving eggs—Wheat bran—Testing individual cows—Clean milk—Cleanliness in the dairy—Grading cream—Paraffin in dairying.

## 276. Experiment Station Work—XXXIX.

CONTENTS: Improvement in peach growing—Mulberries—Alfalfa in the Eastern States—Oat culture in the South—Improvement of grass land—Succotash as a soiling crop—Tillage and bone meal for hogs—Grinding corn for hogs—Dips as lice killers—Digestibility of fish and poultry—Honey vinegar—The farm woodlot.

## 281. Experiment Station Work—XL.

CONTENTS: Insoluble phosphates—Forms and methods of applying lime—Sediment in irrigation water—Hardy Bermuda grass—Williamson method of corn culture—Killing sassafras sprouts—Soluble oils for San Jose scale—Corn as food for man—Storing preserves and canned goods—Incubation of chickens—Prevention of nodule disease of lambs—Some milk terms.

## 296. Experiment Station Work—XLI.

CONTENTS: Wells and pure water—Phosphates and soil acidity—Pure *vs.* poor seed—Disease-resistant clover—Eradication of wild mustard—Sterilization of soils for preventing plant diseases—Seedless tomatoes—Picking olives and mock olives—Hay box or fireless cooker—Insect enemies of shade trees—Feeding whole grain—Improvement of cattle—Ventilation of stables—Hog cots—Preserving eggs—American Camembert cheese.

## 305. Experiment Station Work—XLII.

CONTENTS: Extension of rice culture—Growing seed potatoes under mulch—Manure as a summer mulch in forcing houses—Renewal of old orchards—Injury by Bordeaux mixture—Gluten flours and similar foods—Laxative properties of wheat bran—Emmer as a feeding stuff—Roots for farm animals—Cabbage as stock feed—Pasturing hogs—Cull beans as a feed for hogs—Healthy poultry.

## 309. Experiment Station Work—XLIII.

CONTENTS: Ice for household use—Culture and varieties of root crops—Cowpeas and soy beans—Silage from frosted corn—Cooperation in marketing crops—Incubation of eggs—Causes of death of young chicks—Snow for poultry—Eradication of cattle ticks—Bacteria in cream.

## 316. Experiment Station Work—XLIV.

CONTENTS: Distributing manure and fertilizer—Winterkilling of peach buds—Effect of fertilizers on the color of apples—Ringing herbaceous plants—Potato scab—Effects of gas on trees—The tuna or prickly pear as food for man—Cooking cereal foods—Some experiments in silage making—Recent horse-feeding tests—Supplements to corn in hog feeding—Tillage for hogs following cattle—Hoppers for poultry feeding.

## 317. Experiment Station Work—XLV.

CONTENTS: Improving the convenience and comfort of the farm home—Lining of ditches and reservoirs to prevent seepage losses—Cement pipe for small irrigating systems and other purposes—Pollination of forced tomatoes—Increasing the productiveness of corn—Shrinking of corn in cribs—Feeding grain to milch cows at pasture—Practical use of starters in ripening cream—Water pans for poultry—Catching hook for poultry.

## 320. Experiment Station Work—XLVI.

CONTENTS: Fish fertilizer—Reclamation of salt marshes—Bermuda hay—Protein content of forage crops—Quality in wheat—Does it pay to spray potatoes?—Use of anesthetics in forcing plants—Fattening cattle for market—Cotton-seed meal and corn silage for dairy cows—Carbonated milk—Preservation of fence posts.

## F. B. 329. Experiment Station Work—XLVII.

CONTENTS: Low-grade *v.* high-grade fertilizers—Improvement of sandy soils—Dry farming—Seed selection—Evergreens: Uses and culture—Nut growing in Maryland—“Hogging off” corn—Mineral matter in feeding stuffs—Preparation of miscible oils—An automatic cheese press—Cane sugar and beet sugar.

## 334. Experiment Station Work—XLVIII.

CONTENTS: Plant breeding on the farm—Sorghum for silage—Dry rot of corn—Starch from sweet potatoes—Profits from tomato growing—The keeping of apples—Weed seeds in manure—Weed seeds in feeding stuffs—Forage crops for pigs—Market classes and grades of horses and mules—Profitable and unprofitable cows—Blackhead in turkeys—Extraction of beeswax—An improved hog cot.

## 342. Experiment Station Work—XLIX.

CONTENTS: Conservation of soil resources—Potato breeding—Disk-harrowing alfalfa—The Montreal muskmelon—Storage of Hubbard squash—Fig culture in the South—Mushroom growing—Preserving wild mushrooms—Cooking beans and other vegetables—A model kitchen.

## 353. Experiment Station Work—L.

CONTENTS: Commercial clover seed—Dodder in alfalfa seed—Growing potatoes under straw—Hens *v.* incubators—Preparing fowls for market—Preservation of eggs—The mound-building prairie ant—Coagulation of milk in cheese making—Effect of alkali on cement structures—Silo construction—A cheap and efficient sterilizer—A cheap and efficient ice box—The power laundry for the farm.

## 360. Experiment Station Work—LI.

CONTENTS: Distance between corn hills—The bursting of carnations—Street trees—Spraying for weeds—Market classes and grades of sheep—Vetch hay and vetch silage for cows—Digestibility of kale—Hulled corn—Mixing fat into dough.

## 366. Experiment Station Work—LII.

CONTENTS: Treatment of muck soils—Manures for timothy hay—Corn breeding—Yellow berry in wheat—Weed seeds in feeding stuffs—Hookworm disease in cattle—Effect of machine milking on cows—Milk supply of cities—The crow—Labor, wages, and cost of board in Minnesota.

## 374. Experiment Station Work—LIII.

CONTENTS: Inoculation and lime for alfalfa—Citrus culture in southern Texas—Pruning roundifolia grapes—Native hays of arid region—Bermuda grass—Short *v.* long feeding of beef cattle—Contagious abortion of cattle—Preventing losses at lambing time—Winter lambs for the Pacific Coast market—Feeding work horses—Colony houses for poultry—Food of the crow blackbird—Flour for baking powder biscuits.

## 381. Experiment Station Work—LIV.

CONTENTS: Methods and cost of clearing land—Calf feeding—Gasoline-heated colony brooders—Measuring acidity in cheese making and butter making.

## 384. Experiment Station Work—LV.

CONTENTS: Poultry manure—Early onions in the Southwest—Oleander poisoning of live stock—Fermented cotton-seed meal for hogs—Wintering farm work horses—Alfalfa meal as a feeding stuff—Mangels for milch cows—Records of dairy herds—Skim-milk buttermilk—Whipped cream—Farm butter making—Camembert cheese making—Cement and concrete fence posts.

## 388. Experiment Station Work—LVI.

CONTENTS: Incompatibles in fertilizer mixtures—Principles of dry farming—Methods of seeding oats—Rolling *v.* harrowing winter wheat—Pruning—Bean anthracnose or pod spot—Jelly and jelly making.

## 405. Experiment Station Work—LVII.

CONTENTS: A perfect stand of corn—Protection of seed corn—Clover-seed production—Home-grown feeds for hogs—Fleshing horses for market—Fertility and hatching of eggs—Marketing of eggs—Cement silos.

## 412. Experiment Station Work—LVIII.

CONTENTS: Fertilizers for pineapples—Wart disease of the potato—The typhoid or house fly—Rice and its by-products as feeding stuffs—The forced molting of fowls—A portable panel fence—Pasteurization in butter making—Milling and baking tests with durum wheat.

## 419. Experiment Station Work—LIX.

CONTENTS: Tillage *v.* sod mulch in orchards—Ear characters of seed corn—Seed disinfection—Blackleg of the Irish potato—Progress in horse breeding—Sweet potatoes.

## 425. Experiment Station Work—LX.

CONTENTS: Commercial bean growing—Digestion experiments with range forage crops—Stallion legislation—Substitutes for oats for horses—Tests for casein in milk.

## F. B. 430. Experiment Station Work—LXI.

CONTENTS: Unusual *v.* standard fertilizers—Symptoms of disease in plants—Premature dropping of pigs—Condimental feeds—Feeding the dairy calf—Defects in cottage cheese—The Iowa silo.

## 435. Experiment Station Work—LXII.

CONTENTS: Water required for crops—Burning lime on the farm—Tomatoes for canning—Lime sulphur as a fungicide—Market classes and grades of meat—Lice on poultry—Neufchâtel cheese.

## 451. Experiment Station Work—LXIII.

CONTENTS: Sterilizing tobacco plant beds—Clover growing—Curing clover hay—The velvet bean—Draft horses—Care of mares and foals.

## 457. Experiment Station Work—LXIV.

CONTENTS: Low-grade fertilizers—Japanese cane for forage—Fighting the boll weevil—Hastening maturity of cotton with fertilizers—The scuppernong—Early spring lambs—Production of sanitary milk—Lacto: A frozen dairy product—A reinforced brick silo.

## 465. Experiment Station Work—LXV.

CONTENTS: Cost of available nitrogen—Management of marsh soils—Weeder harrow for dry farms—V-shaped cotton-stalk cutter—Storage for root crops—Danger in feeding root crops—Sanitary care of swine—Individuality of the cow—Hatching and rearing turkeys.

## 469. Experiment Station Work—LXVI.

CONTENTS: Lawns—Fertilizing asparagus—Turnips for sheep—Loss of lambs—Cost of market milk—Propagation of starters—The plastered silo.

## 479. Experiment Station Work—LXVII.

CONTENTS: Screening cabbage seed beds—Spraying apple orchards—New type of spray nozzle—Preparation of corn for hogs—Experiments in beef production—Preparation of choice hams—Factors affecting fat in cream.

## 486. Experiment Station Work—LXVIII.

CONTENTS: The feeding of a grand champion steer—The utilization of dairy by-products as food.

## 499. Experiment Station Work—LXIX.

CONTENTS: Top-dressing pastures—Making hay—A fresh-air brooder—Roosting closet for poultry—Exhibition contests of dairy products—Blind staggers of horses—Adobe as a building material—White and color washes.

## 504. Experiment Station Work—LXX.

CONTENTS: Improvement of sandy soils—Utilization of roughage—Alfalfa and corn for lambs—Feeding alfalfa hay to swine—Cooperative herd testing—Cooperative cattle breeding—Losses due to low-grade cream—Disposing of waste dips—Care of farm machinery.

## 514. Experiment Station Work—LXXI.

CONTENTS: Improved varieties of timothy—Hardy alfalfa—Harvesting soy beans—Soy beans for silage—Fat in milk of cows at time of calving—Clean milk.

## 517. Experiment Station Work—LXXII.

CONTENTS: Promoting germination of seed—Cotton anthracnose—Asphaltum treatment for peach-tree borer—Raising and finishing beef calves—Open-shed feeding of steers—Four systems of dairy farming—Market eggs—Uses of the sweet potato—Vinegar making from waste grapes—Lighting farm houses.

## AGRICULTURAL EDUCATION SERVICE.

## BULLETINS.

Misc. Bul. 1. Proceedings of the Second Annual Convention of the Association of American Agricultural Colleges and Experiment Stations. 1889.

Buls. 16, 20, 24, 30, 41, 49, 65, 76, 99, 184, 196, 212, 228. Proceedings of the Annual Conventions of the Association of American Agricultural Colleges and Experiment Stations. 1892-1909.

204. School Gardening and Nature Study in English Rural Schools and in London.

232. Consolidated Rural Schools and Organization of a County System.

247. Organization Lists of the Agricultural Colleges and Experiment Stations in the United States, 1911.

250. Arkansas State Agricultural Schools.

252. Some Types of Children's Garden Work.

## CIRCULARS.

Circ. 60. The Teaching of Agriculture in the Rural Common Schools. (Ninth Report of the Committee on Methods of Teaching Agriculture.)  
 77 (revised). A Secondary Course in Agronomy.  
 84. Education for Country Life.  
 90. Normal School Instruction in Agriculture.  
 97 (revised). Institutions in the United States Giving Instruction in Agriculture. [Corrected to March 15, 1912.]  
 100. A Secondary Course in Animal Production.  
 106 (revised). The American System of Agricultural Education.  
 111 (revised). Federal Legislation, Regulations, and Rulings Affecting Agricultural Colleges and Experiment Stations.  
 115. Report of the Committee on Instruction in Agriculture, 1911.  
 117. A Working Erosion Model for Schools.

## DOCUMENTS.

Doc. 572. Report on Graduate School of Agriculture.  
 575. Graduate School of Agriculture as a Means of Improving the Pedagogical Form of Courses in Agriculture.  
 678. Instruction in Agriculture in Land-Grant Colleges and Schools for Colored Persons.  
 682. Mission of the Land-Grant Colleges.  
 803. Progress in Agricultural Education, 1904.  
 893. Courses in Agriculture, Horticulture, and Allied Subjects.  
 1025. Progress in Agricultural Education, 1906.  
 1218. Progress in Agricultural Education, 1908.  
 1301. Agriculture as a First-Year Science.  
 1311. Progress in Agricultural Education, 1909.  
 1388. Statistics of Land-Grant Colleges and Agricultural Experiment Stations, 1910.  
 1389. Progress in Agricultural Education, 1910.  
 1463. The Occupation of the Agricultural College Graduate.

## SEPARATE REPRINTS FROM THE YEARBOOK.

Ybk. Sep. 382. The Use of Illustrative Material in Teaching Agriculture in Rural Schools.  
 445. Training Courses for Teachers of Agriculture.  
 527. Community Work in the Rural High School.

## FARMERS' BULLETINS.

F. B. 385. Boys' and Girls' Agricultural Clubs.  
 408. School Exercises in Plant Production.  
 409. School Lessons on Corn.  
 423. Forest Nurseries for Schools.

## FARMERS' INSTITUTES AND EXTENSION WORK.

## BULLETINS.

Bul. 110, 154, 182, 199, 213, 225, and 238. Proceedings of the Annual Meetings of the American Association of Farmers' Institute Workers. 1901-1909.  
 155. Agricultural Instruction for Adults in the British Empire.  
 163. Agricultural Instruction for Adults in Continental Countries.  
 166. Course in Cheese Making for Movable Schools of Agriculture.  
 178. Course in Fruit Growing for Movable Schools of Agriculture.  
 200. Course in Cereal Foods and Their Preparation for Movable Schools of Agriculture.

Bul. 231. College Extension in Agriculture.  
 241. Legislation Relating to Farmers' Institutes in the United States.  
 245. Course in the Use and Preparation of Vegetable Foods for Movable and Correspondence Schools of Agriculture.  
 251. Proceedings of the Sixteenth Annual Meeting of the American Association of Farmers' Institute Workers, held at Columbus, Ohio, Nov. 13, 14, 1911.

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Approved:

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